Introduction:
High concentrations of neurofilament light chain (NFL) in serum predicted poor outcome in patients resuscitated from cardiac arrest [1]. We aimed to evaluate the prognostic value of NFL in COMACARE trial [2,3] patients who were resuscitated from cardiogenic out-of-hospital cardiac arrest (OHCA) with a shockable initial rhythm.

Methods:
Using the commercially available Single Molecule Array (Simoa) NF-light immunoassay (Quanterix, Lexington, MA), we measured NFL levels from plasma taken 48 h after OHCA. We assessed neurological outcome six months after OHCA and defined good outcome as Cerebral Performance Category (CPC) 1-2 and poor outcome as CPC 3-5.

Results:
Overall, six-month outcome was good for 73 of 112 (65.2%) patients. The median (interquartile range) NFL concentration at 48 h was 19 pg/ml (11-31) in the patients with good outcome and 2343 pg/ml (587-5829) in those with poor outcome, p<0.001. NFL at 48 h predicted poor outcome with an area under the receiver operating characteristic curve (ROC) of 0.98 (95% CI, 0.97-1.00). With the cutoff 263 pg/ml, the sensitivity was 0.83 (95% CI, 0.71-0.96), specificity was 0.99 (95% CI, 0.96-1.00), and the positive likelihood ratio was 60.8 (95% CI, 8.6-428.4)

Conclusion:
In patients resuscitated from OHCA with a shockable rhythm, the plasma NFL concentration at 48 h after cardiac arrest had an excellent ability to predict 6-month outcome.

References: